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NEW RECORD SPECIES OF GENUS Astragalus L. IN IRAQ

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Abstract

Astragalus mesogitanus is a new recorded species for Iraqi flora, from Onobrychium genus section, was collected from Erbil district, all morphological features were described in details as well as some micromorphological character as the trichomes and were provided with dimensions and plates, section key was also updated which illustrated the importance of standard (corolla) trichomes in species identification.

Keywords: Astragalus, Fabaceae, Iraq, New record, Onobrychium, Trichomes.

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Introduction

subtropical regions but also in temperate areas and distributed at the mountains in tropical regions, in Iraq the genus was represented by 116 species distributed in different regions (Townsend and Guest,1974). The genus firstly described by Linnaeus (1753) mentioned 33 species and didn't included *A. mesogitanus,* which was firstly described in flora orientalis by Boissier (1867) which arranged genus species in two series according to habits then to 7 sub series finely ranked the species in to 81 sections included the studied species in section 55 Onobrychium.

A. mesogitanus is a native species for Turkey from Onobrychium section as mentioned by Ekici *et al.*(2015); In flora of Turkey the genus represented with 380 species some of them grown in Irano-Turkey regions and referred also to Iraqis species (Davis, 1970).

In Iraq the genus represented by 116 species arranged in 36 sections, included Onobrychium section which represented by *A. mossulensis* Bunge and *A. chaborasicus* Boiss.&Hausskn. only, as well as the genus species arranged in 4 groups according to trichomes and leaves traits as well as the habits of the species(Townsend and Guest, 1974). The species had not been mentioned previously weather in Iraqi flora or other publication included the genus as the flora of low land Iraq (Rechinger, 1964) and publications of geographical distribution in Iraq (Al-Rawi, 1964;Ridda & Daood, 1982).

Astragalus mesogitanus Boiss.Synonyms(Podlech and Zarre, 2013; Ekici *et al.,* 2015; Govaerts *et al.*, 2021)

A. langorensis Bunge.

A. decumbens Boss.

A. hololeucoides Podlech & Sytin.

A. leucocyaneus Griseb.

A. lydius Boiss.

Tragacantha leucocyanea (Griseb) Kuntze

T. mesogitana (Boiss.) Kuntze

Materials and Methods

Several species specimens were collected from different field trips between 2018-2020 then it was studied carefully in detailsto compared with other related herbarium samples, then preserved in Baghdad university herbarium (BUH). The morphological study based on the dimensions of each vegetative and reproductive parts as well as the textures and colors of these parts, in addition to trichomes traits which are studied by epidermis pealing and staining with safranine 0.5%according to Khaleel and Aldobaissi, (2022),The keys used for specimens distinguished were Flora of Turkey key (Davis,1970; Ekici *et al.*, 2015)and Iraqi flora key (Townsend and Guest, 1974).

Results and Discusion

Morphological Characters

Species specimens are perennial herbs woody at base, with thick and yellowish tap roots; stems ascending or procumbent, striated greenish to white as a results of white bifurcate hairsspreading especially in lower portion (150(255)400 x 2(3)4) mm; leaves compound paripinnate arranged alternately – distichous (25(45)60 mm) composed of 3-6 pairs of narrowly elliptic leaflets with acute apexes and entire margins(6(8.5)12 x 3(4)6 mm), each leaf has a pair of a membranous lanceolated stipules adnate to shorts petiole with

acuminate apex (5(11)15mm); Inflorescence is a short an dense globose raceme elongated at fruiting time (15(55)80 mm), florets arranged among scaly lanceolated bracts (1.5(1.75)2 x 0.75(0.85)1 mm, calyx tubular in shape (6(6.25)6.5 x 2(2.25)2.5 mm), green flushed with purple with five unequal falcate teeth hairy with white sub-simple hairs as well as white and black bifurcate hairs, violate papilonaceous corolla composed from ligulated standard hairy dorsally and undulated in margins (13(13.5)14 x 4(4.25)4.5 mm), wings obovate with obtuse apex and Notched laterally, (10(10.5)11 x 1.5(1.75)2 mm), keel leaves have linear claw and ovate limp with apiculated apex (6(6.25)6.5 x 1.5(1.75)2mm), Androecium diadelphous composed of 10 unequalwhite filaments nine of them fused in 3/4 of them length (5.5(6.5)7.75 mm), Gyniscium is representing with single and simple pistil with elongated green and hairy ovary, glabrous style and capitates yellowish stigma (8(8.25)8.5 x 1(1.25)1.5 mm); fruits hairy lencolated with deflxed peak characterized by persistence style and stigma (12(13)13.3 x 3(3.5)4 mm); seeds smooth, shine brownish-blacksh ovate to subquadrate with lateral notch included the circular hillum (2(3)3.5 x 1.5(2)2.5 mm).

Plant body covered with black and white bifurcate asymmetrical or unequally hairs(plate 2) which is considered as a distinguished character for group of related section compressing the Onobrychium section as reported by (Davis, 1970; Ghahremaninejad,2004)

According to study results and reviewing flora of Iraq (Townsend and Guest, 1974).as well as other references and floras (Davis, 1970;Podlech and Zarre, 2013),the most distinctive feature of *A.mesogitanus* among section species is the presence of standard hairs, which is consider as the basic feature for species identification in section key.

Updating key for section Onobrychoidei (Onobrychium) Dc.

Flower sessile in capitates or cylindrical, dense spike form raceme, and with distinct leafy stem:

Pods are oblong-ovoid, strictly erect with the upper suture pressed closely to the inflorescence axis, standard distinctly narrowed above to a ligulated appendage.

Standard hairy dorsally ----------*A. mesogitanus*

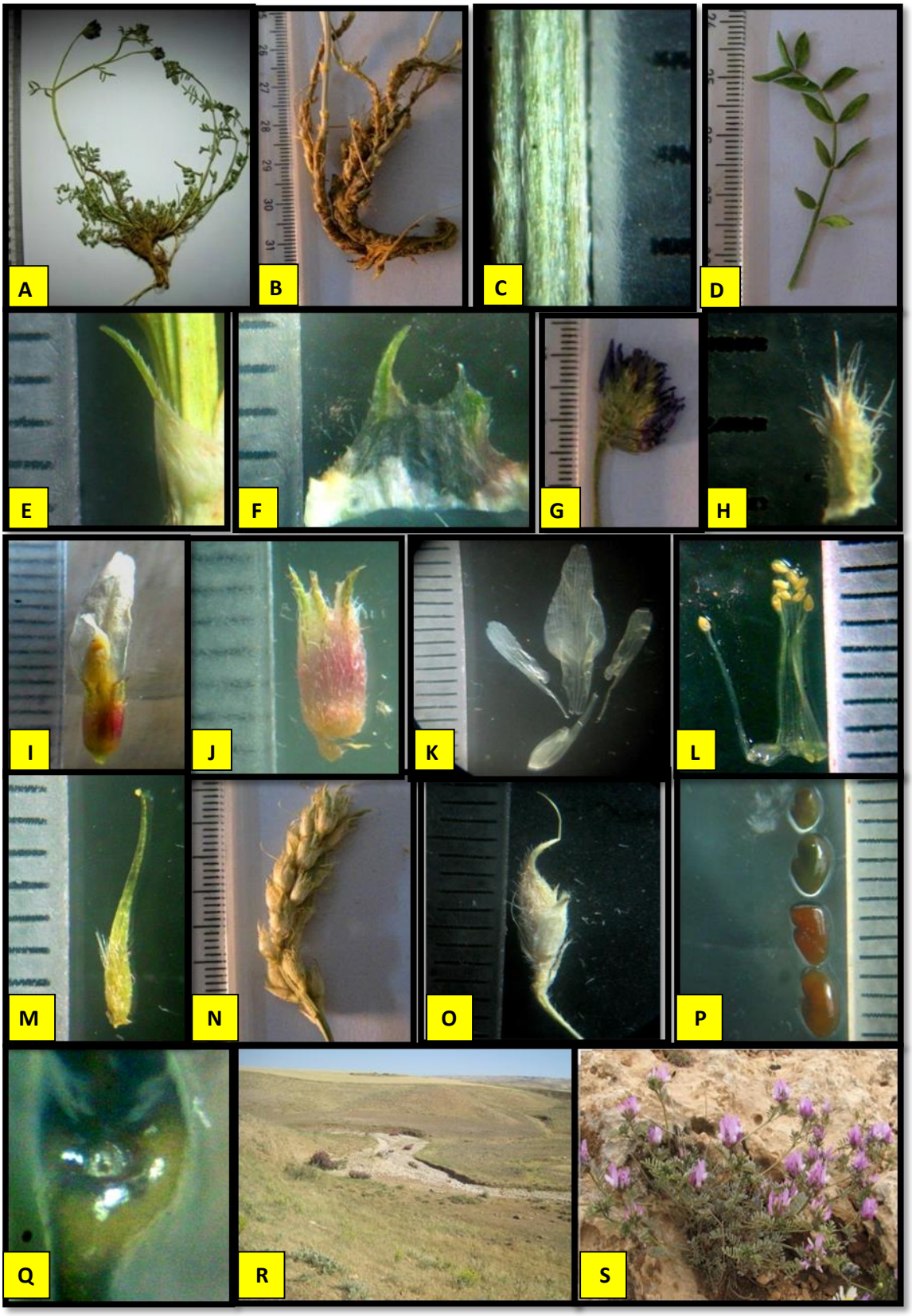
Standard glabrous dorsally----------*A. chaborasicus*

Pods linear-oblong, erect at first but finally spreading, standard not ligulate appendiculate----------*A. mossulensis*

Habitat and distribution

Species specimens were collected from foot hill in Erbil province (Erbil district- FAR), Hanara road east Salah-aldin road, in foothill region with loamy-rocky soil, flowering time from March to May.

Species plants are native to Turkey as reported by (Ekici *et al.*, 2015) and could be distributed in Iraq as species rang extension as proposed in other studies involved with new recorded species in Iraq (Haloob, 2016), or could be transported with other foreign importing plants as mentioned by (Al-musawi and Majeed, 2013)



Plate(1): *Astragalus mesogitanus* A: plant habit, B::root, C: stem, D: compound leaf, E,F: stipules, G: inflorescence, H : bract, I,J: Calyx, K: Corolla, L: Stamens, M: Pistil, N: Fruiting inflorescence, O: fruit, P: Seed, Q: Seed hillum240X, R: Habitat, S: Plant habit in field.

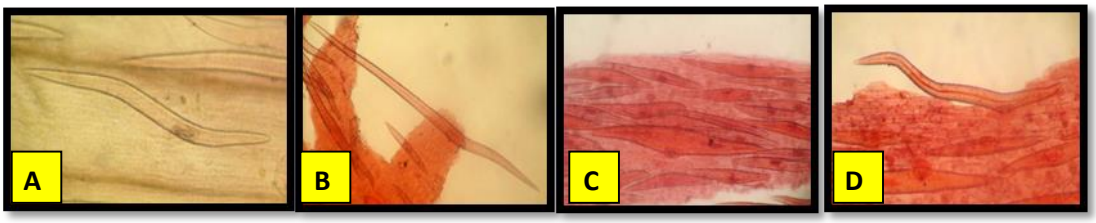


Plate (2):*Astragalus mesogitanus* bifurcate trichomes A: standard trichomes, B: Stem trichomes, C: Fruit trichomes, D: leaf trichomes. in 100X

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